REMARKS/ARGUMENTS

The Examiner is thanked for the clarity and conciseness of the Office Action and for the citation of the references which have been studied with interest and care.

Claim Rejections - 35 U.S.C. § 103

Claims 1-16 and 26[1] were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,031,564 to Ma et al. in view of U.S. Patent No. 6,765,568 to Swift et al.

Ma et al. discloses a method and apparatus for monoscopic to stereoscopic image conversion. Ma et al. involves "identifying at least one object in the monoscopic image with a first perspective, outlining the object to generate an outline, endowing the object with depth information and generating a second perspective by image warping the object." [Ma et al., column 2, lines 23-27.]

Swift et al. discloses an electronic stereoscopic media delivery system that "provides automatic and manual optimization adjustments such as parallax shift adjustment, brightness control, color adjustment, and cross-talk reduction to the stereoscopic media based on viewing hardware, monitor size, and media content for optimal viewing quality." [Swift et al., column 2, lines 36-42.]

In an example embodiment (referring to FIG. 10 of Applicants' Specification), the conversion workstation 1004 is also configured to allow the user to specify an output screen size or range of output screen sizes, so that perceived depths of objects or other components within the three-dimensional image will be preserved when the three-dimensional image is presented at the specified screen size or range of screen sizes. By way of example, a user selected choice of output screen size formatted files 1005 is provided as an input to the process for providing 3D images 1000. Example ranges of output screen sizes include, but are not limited to: 12-65 inch screen sizes, 18-35 foot screen sizes, 40-60 foot screen sizes, and 80-100 foot screen sizes. In

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[1] In view of paragraphs 27-30 of the Office Action, it appears that this is a typographical error and that the Examiner intended to indicate (in paragraph 6 of the Office Action) that claims 1-16, **25** and 26 were rejected.

various embodiments, the user can specify any screen size, multiple screen sizes, or a range of screen sizes. As shown in this example, the user selected choice of output screen size formatted files 1005 is provided as an input to processing steps 1007 and 1008 for scaling of depth values of hidden surface reconstructions, respectively. Once the 2D-to-3D conversion process 1002 is complete, a user specified output screen size (such as an 80-100 foot large venue screen size) is used at step 1007 to scale the depth values employed at the process step 1003 to create the alternate perspective frames so that the focal point distances will match that large screen size. The specified output screen size is also used at step 1008 to provide scaling for a step 1009 during which hidden surface reconstruction processing (discussed above) is performed. In one embodiment, hidden surface reconstruction information is scaled depending upon the specified output screen size.

Swift et al. does not: include the word "range", suggest selecting a range of screen sizes, or suggest scaling depth information to accommodate a range of screen sizes. In paragraph 10 of the Office Action, the following was stated (emphasis added):

> Swift et al does not [] expressly disclose "range of screen sizes." Official Notice is taken that both the concept and the advantage of selecting a range of screen sizes as opposed to a single screen size are well known and expected in the art. **It would have been obvious to have included the selection of a range of screen sizes** as providing a correlation between a range of screen sizes to a predetermined computation is known **to simplify the implementation** by reducing the number of total conditions as well as increasing the number of instances a particular computation is relevant.

For the reasons discussed below, Applicant demands that the Examiner produce authority for this statement.

MPEP 2144.03 provides the following (emphasis added):

> Official notice without documentary evidence to support an examiner's conclusion is permissible only in some circumstances. While "official notice" may be relied on, these circumstances should be rare when an application is under final rejection or action under 37 CFR 1.113. **Official notice unsupported by documentary evidence should only be taken by the examiner where the facts** asserted to be well-known, or to be common knowledge in the art **are capable of instant and unquestionable demonstration as being well-known.**
> ***
> It would <u>not</u> be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known.
> ***

Ordinarily, there must be some form of evidence in the record to support an assertion of common knowledge.

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If the examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. See 37 CFR 1.104(d)(2).

[MPEP 2144.03.]

To reiterate, the Examiner stated the following:

Official Notice is taken that **both the concept and the advantage of selecting a range of screen sizes as opposed to a single screen size are well known and expected in the art. It would have been obvious to have included the selection of a range of screen sizes** as providing a correlation between a range of screen sizes to a predetermined computation is known **to simplify the implementation** by reducing the number of total conditions as well as increasing the number of instances a particular computation is relevant.

[Office Action, paragraph 10 (emphasis added).]

Applicant traverses this assertion for the following reasons.

What is the evidence in the possession of the Examiner, or that can be cited by the Examiner, that supports the assertion that "selecting a range of screen sizes" somehow simplifies the implementation? To the contrary, determining a scaling solution that accommodates multiple instances of screen sizes may very well complicate the implementation.

The logic employed in this Official Notice is roughly analogous to the following incorrect assertion: If a locksmith is asked to make a new key for particular a lock, is would be obvious from this request that the locksmith should instead provide a (skeleton?) key that would open both that particular lock as well as the different lock on the next door neighbor's door.

A "one-size fits all" solution (or a range of all, in the present case) certainly is not self-evident merely from knowledge of the all, or even from knowledge of a solution for one of the all.

Claim 6 recites "**scaling hidden surface reconstruction information associated with hidden surface areas** in the three-dimensional image to preserve reconstructions of the hidden surface areas when the three-dimensional image is presented within the range of screen sizes selected." (Emphasis added.)

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Ma et al., at column 3, lines 19-21, recites: "Second, the **pixels <u>within</u> the outlined shape** of the image **are interpolated** where the boundary of the image outline expands or contracts." (Emphasis added.)

This disclosure in Ma et al. has nothing to do with hidden surface reconstruction information. It merely relates to object warping, i.e., the warping of pixels <u>within</u> the outlined shape. Moreover, the Swift et al. parallax shift adjustment based on monitor size has nothing to do with hidden surface reconstruction.

The above arguments are also applicable to claims 11-13 and 25.

Claim 16 recites "wherein the scaling is performed on a lower resolution version of an image used to create the three-dimensional image." This pertains to scaling by processing a different (lower resolution) version of the image than the image that was previously processed to create the three-dimensional image. The disclosure in Swift et al., at column 6, lines 12-13, has nothing to do with operating on a lower resolution version of the three-dimensional image to perform a scaling function. Further with regard paragraph 26 in the Office Action, whether or not the resolution of an image changes when it is scaled to increase or decrease the display size is irrelevant.

Claim 17 was rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,031,564 to Ma et al. in view of U.S. Patent No. 6,765,568 to Swift et al. in view of U.S. Patent No. 5,568,595 to Yosefi et al. Claims 18-20 and 22-24 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,031,564 to Ma et al. in view of U.S. Patent No. 5,568,595 to Yosefi et al. Claim 21 was rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,031,564 to Ma et al. in view of U.S. Patent No. 5,568,595 to Yosefi et al. in view of U.S. Patent No. 5,929,859 to Meijers.

Yosefi et al. discloses a system and method for producing a two dimensional color image with an artificial shadow. In an example embodiment, an apparatus for generating artificial shadow includes "a low resolution preview generator operative to automatically provide a low resolution preview of the imaged object together with an artificial shadow having the at least one user-selected characteristic." [Yosefi et al., column 4, lines 12-20.]

Yosefi et al. does not pertain to providing a three-dimensional image. Nor does Yosefi et al. disclose or suggest selecting a range of screen sizes, or scaling depth information to accommodate a range of screen sizes.

Meijers discloses an image processing system for generating at least one output image related to an image input through a parallactic transformation. Miejers discloses a form of "pre-processing" that involves storing a plurality of successive pixels before the processor processes the pixels.

It is respectfully submitted that Yosefi et al. is not analogous art. Even if it is ultimately determined that Ma et al., Swift et al. and/or Meijers were properly combined with Yosefi et al., claims 17-24 are allowable for the reasons discussed above.

Claims 27-30 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,031,564 to Ma et al. in view of U.S. Patent No. 6,765,568 to Swift et al. in view of U.S. Patent No. 5,481,321 to Lipton.

Lipton discloses a stereoscopic motion picture projection system. The Lipton system, with its polarization control means for controlling a polarization characteristic of light, employs a technology that has nothing to do with scaling hidden surface area reconstruction information, or even with the use of image data. Moreover, there is no disclosure or suggestion in Ma et al. or Swift et al. that it would be desirable to look to the teachings of Lipton to enhance the Ma et al. or Swift et al. techniques.

Even if properly combined, for the reasons discussed above the collective teachings of Ma et al., Swift et al. and Lipton fail to disclose or suggest claims 27-30.

Claims 31-39 and 44-47 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,031,564 to Ma et al. in view of U.S. Patent No. 6,765,568 to Swift et al. in view of U.S. Patent No. 5,973,831 to Kleinberger et al.

Kleinberger et al. discloses systems for three-dimensional viewing using light polarizing layers. The Kleinberger et al. system, with its light polarizing layers, employs a 3D viewing technology that has nothing to do with scaling depth and hidden surface area reconstruction information, or even with the use of image data. Moreover, there is no disclosure or suggestion in Ma et al. or Swift et al. that it would be desirable to look to the teachings of Kleinberger et al. to enhance the Ma et al. or Swift et al. techniques.

Even if properly combined, for the reasons discussed above the collective teachings of Ma et al., Swift et al. and Kleinberger et al. fail to disclose or suggest claims 31-39 and 44-47.

Claims 37 and 41-43 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,031,564 to Ma et al. in view of U.S. Patent No. 6,765,568 to Swift et al. in view of U.S. Patent No. 6,198,484 to Kameyama.

Kameyama discloses a stereoscopic display system. Kameyama does not disclose or suggest receiving or accessing image data created by scaling depth and hidden surface area reconstruction information.

For the reasons discussed above the collective teachings of Ma et al., Swift et al. and Kameyama fail to disclose or suggest claims 37 and 41-43.

Claims 37, 40 and 48-50 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,031,564 to Ma et al. in view of U.S. Patent No. 6,765,568 to Swift et al. in view of U.S. Patent No. 5,495,576 to Ritchey.

Ritchey discloses a panoramic image based virtual reality/telepresence audio-visual system and method. Ritchey does not disclose or suggest receiving or accessing image data created by scaling depth and hidden surface area reconstruction information.

For the reasons discussed above the collective teachings of Ma et al., Swift et al. and Richey fail to disclose or suggest claims 37, 40 and 48-50.

Claims 51 and 52 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,031,564 to Ma et al. in view of U.S. Patent No. 6,765,568 to Swift et al. in view of U.S. Patent No. 6,496,598 to Harman.

Harman discloses an image processing method and apparatus. Harmon discloses a "Module 2", an image analysis process that includes the steps of: image compression, motion detection, object detection, and motion analysis. [Harmon, column 8, line 7 - column 11, line 9.] Harmon does not disclose or suggest receiving or accessing image data created by scaling depth and hidden surface area reconstruction information.

For the reasons discussed above the collective teachings of Ma et al., Swift et al. and Harman fail to disclose or suggest claims 51 and 52.

For the reasons discussed above, withdrawal of these rejections is respectfully requested.

CONCLUDING REMARKS

Applicant submits that the application is in condition for allowance. Concurrence by the Examiner and early passage of the application to issue are respectfully requested.

Any additional fees which are required in connection with this communication and which are not specifically provided for herewith are authorized to be charged to Deposit Account No. 500651. Any overpayments are also authorized to be credited to this account.

Respectfully submitted,

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